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# Working in Industry

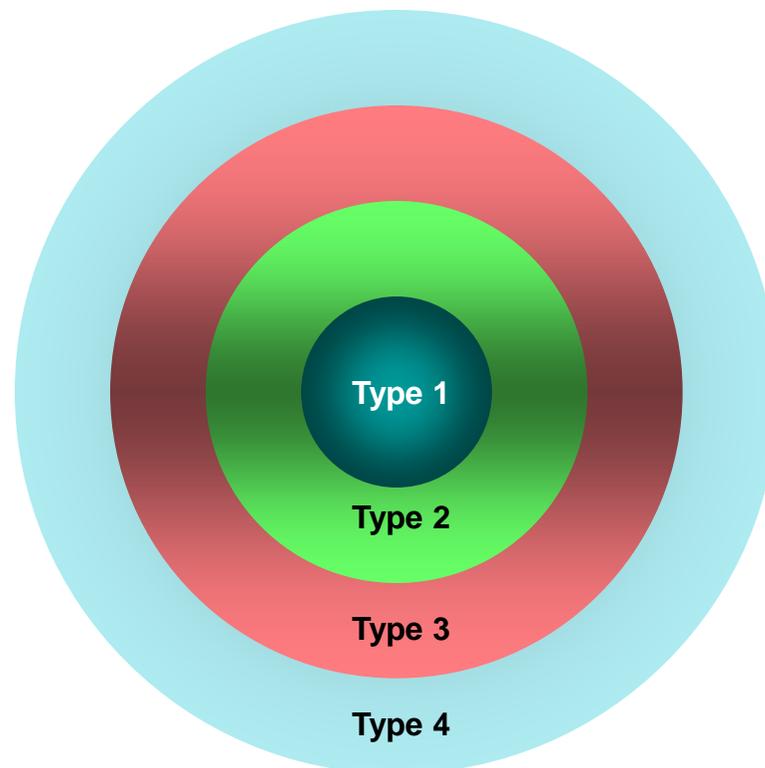
ACS Career Pathways Series

# “What Do You Want to Do . . . ?”

Opening activity

## How Specific Is Your Objective?

- Type 1: Very specific about desired position and company
- Type 2: Specific about job area and company type
- Type 3: Descriptive of general job area
- Type 4: Very general about job area



# Planning an Job Search in Industry: Principles



- Know yourself (your values, your strengths)
- Know the market
- Know the job search tools

Important tip: The more clear you are about these three areas, the more successful and satisfying your job search will be.

## Values: A Typology

- Advancement (opportunity for promotion and recognition)
- Goal orientation (ability to be committed to and motivated by a personal objective)
- Autonomy (freedom and ability to be self-directed)
- Challenge (drive to overcome obstacles and solve difficult problems)
- Security (stability and predictability)
- Balance (equilibrium between personal and business)
- Discovery (developing understanding for its own sake)
- Perfectionism (doing things exactly right, no matter how long it takes)
- Altruism (the opportunity to contribute to the welfare of others)

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# Assessing My Values

Career Compass application activity

## Strengths: A Typology

- Technical strengths (examples: chemistry subspecialty, lab and instrumentation experience, math and statistics, work with physics and biology)
- Leadership strengths (examples: leading a team's activities, giving directions, developing others)
- Management strengths (examples: personal time management, budgeting and scheduling a project, ability to multitask)
- Team strengths (examples: ability to work as a team member, to coordinate team activities, to allocate responsibilities based on the abilities and background of each team member)
- Communication strengths (examples: ability to write reports, deal with difficult situations, express yourself orally one-on-one and one-to-group)

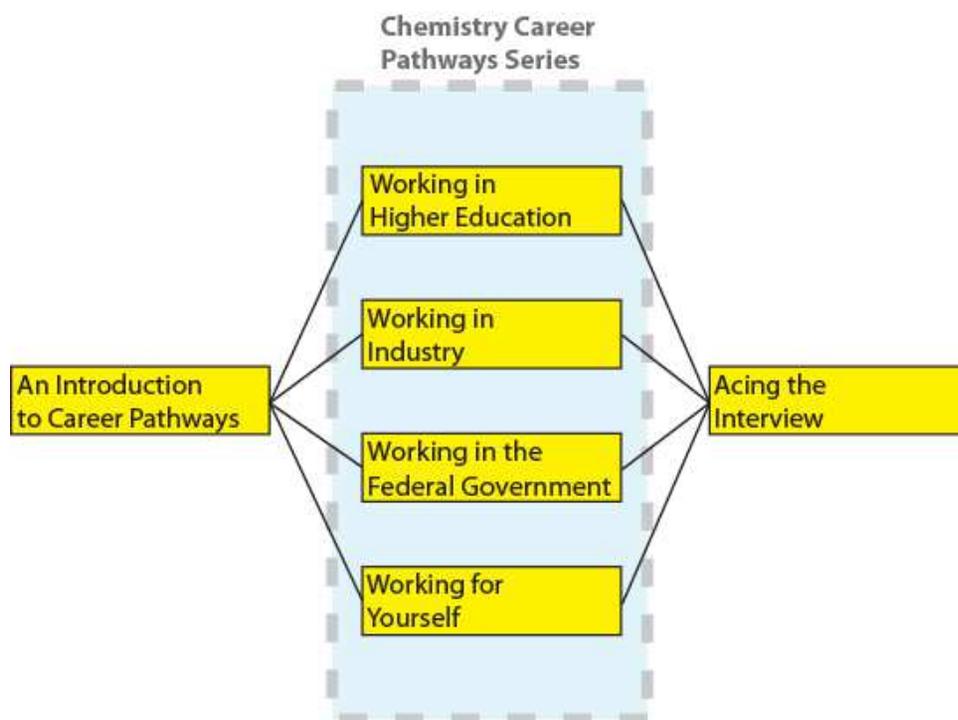
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# Assessing My Strengths

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# ACS Careers Pathways Series



**Occupation Specific  
and Skill Set Training**

Postdoc to  
Faculty Workshop

Academic Employment  
Initiative

ACS Leadership System  
Courses

Professional Education  
Courses

Online Business  
Courses

Partnership for Public  
Service (external)

Entrepreneurial  
Training Program

Entrepreneurial  
Resource Center

## Working in Industry: Agenda

- Part 1: The Landscape of the Industry Pathway
  - Trends in Industrial Hiring
  - Types of Positions Available to Chemists in Industry
  - Positioning Yourself for a Job in Industry
- Part 2: Presenting Myself
  - Crafting a Resume Portfolio
  - Getting Hired in Industry

## Job Market Trends and Implications

- Focus on cost reduction and “core competencies”
  - Selling off unprofitable businesses
  - Increased outsourcing of R&D and other functions
  - Reliance on contract workers
  - Fewer “layers” in organizations; more leveraging resources
- Heightened attention to domestic and international competition
  - Focus on quality, customer service, inventory control and innovation
  - Manufacturing (and to some extent, research) is being globalized
- Shortened product life cycles
  - Increased emphasis on cross-functional collaboration
  - Increased requirement for communication and non-technical skills

# Job Market Outlook

## *Increasing Demand*

- Contract research and testing services
- Toxicology and environmental chemistry
- Patent law
- Marketing and sales
- Specialized R&D firms
- Materials scientists
- Energy and petrochemical research
- M.S. and Ph.D. positions

## *Decreasing Demand*

- Basic chemicals and chemical manufacturing
- Plastic and synthetic materials
- Agricultural chemicals
- Pharmaceutical manufacturers
- Paints and allied products
- B.S. positions

Source: U.S. Bureau of Labor Statistics (BLS.gov), April, 2012

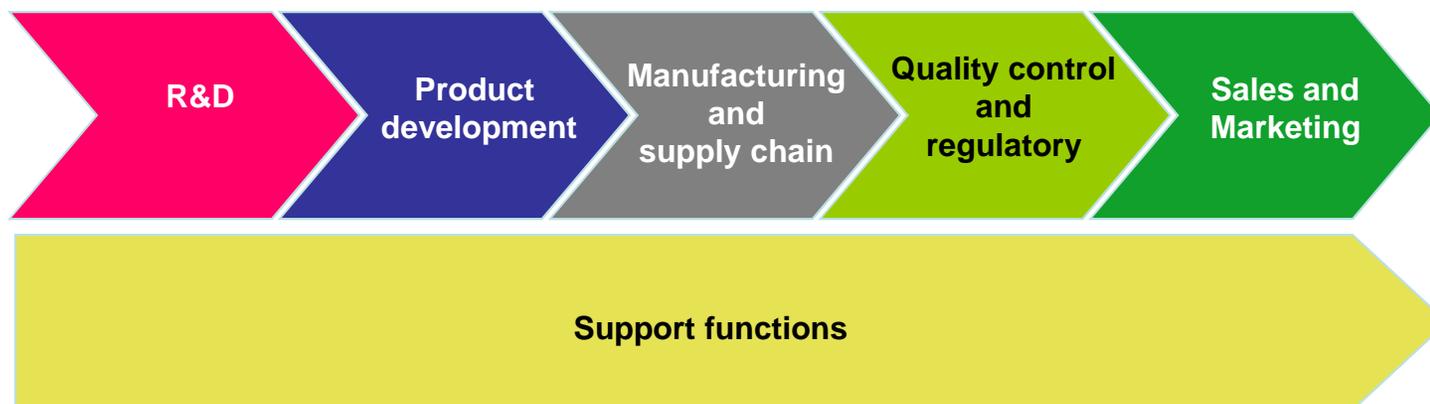
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# Trends and My Job Search

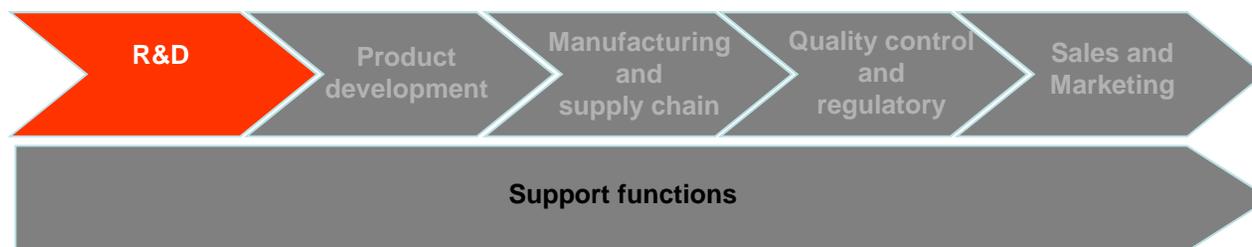
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## Careers in Industry: The Value Chain



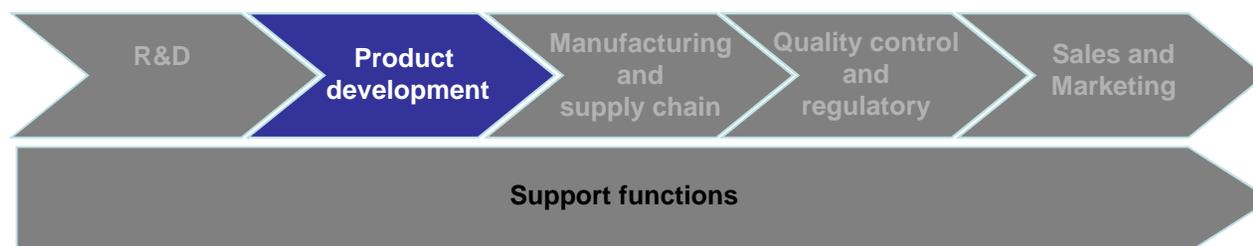
From Michael Porter's *Competitive Advantage*

## R&D



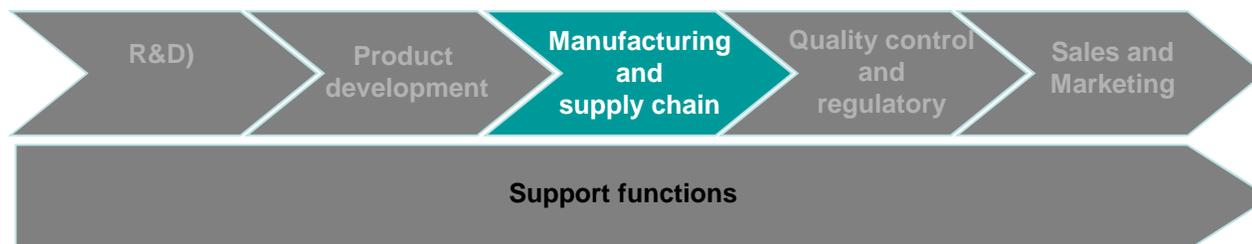
- In basic research, chemists investigate the properties, composition, and structure of matter and the laws that govern the combination of elements and reactions of substances to each other.
- In applied R&D, chemists create new products and processes or improve existing ones, often using knowledge gained from basic research.
- General focus: Identify a problem that can be solved through chemistry
- Job titles can include R&D Scientist. Lead R&D Scientist, R&D Research Principal

# Product Development



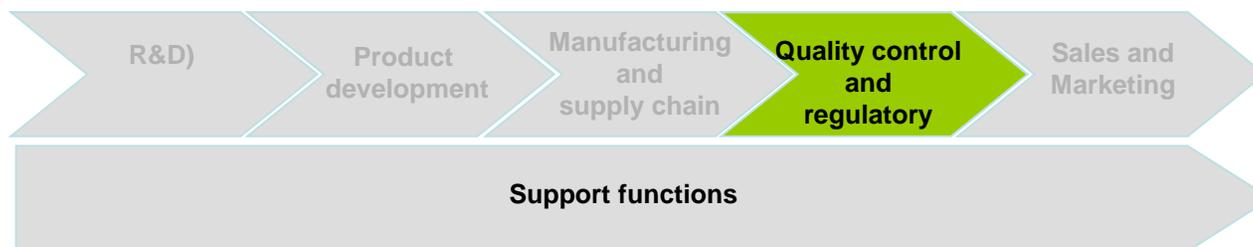
- Solve problems for their company by developing chemicals or mixtures of chemicals that function as desired in a given end use.
- Translate ideas from a lab into a useful and effective product.
- Can work on totally new products, product improvements, or extensions of product uses.
- Can work in a range of industries, including pulp and paper, coatings, pharmaceuticals, foods, consumer packaged goods, and electronics.
- General focus: Identify a cost-effective solution to a problem.
- Job titles can include Product Development Chemist, Laboratory Technician.

## Manufacturing and Supply Chain



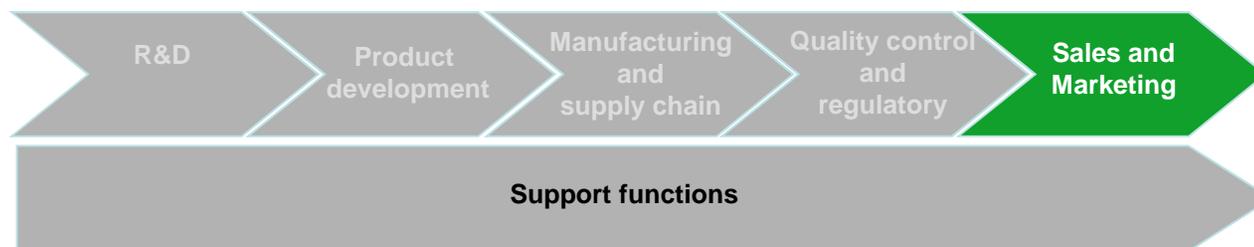
- Manufacturing
  - Develop and test manufacturing processes
  - Ensure availability of raw materials for various stages of production
  - Ensure that all safety standards are met
  - Develop and apply standard operating procedures and good manufacturing practices
- Supply chain and distribution
  - Package and monitor shipments
  - Ensure compliance with all governmental regulations
- Job titles can include Process Development Chemists/Engineer, Analytical Chemists, Application Chemists, Manufacturing Process Chemists, Formulation Chemists, Facility Manager, Product Development Manager, Development Chemists, Manufacturing Specialists, Manufacturing Technicians

# Quality Control and Regulatory Affairs



- Establish guidelines for manufacturing processes to minimize defects
- Manage and participate in review of manufacturing procedures
- Ensure that raw materials, equipment, and processes all meet internal and external standards
- Develop, implement, and manage testing plans and methods
- Maintain quality control of products and procedures
- Ensure that the environment is controlled, equipment is maintained, and facility is well managed
- Ensure that manufacturing processes and products meet regulatory requirements
- Act as liaison between company and regulatory agencies
- Job titles can include QC Chemist, QA Chemist, Technology Chemist, Field Chemist, Production Support Chemist
- Especially in pharmaceutical companies: Validation Specialist and Document Coordinator

## Marketing and Sales



- Marketing focuses on managing marketing budgets, ad strategies, product launches, product expansion, and providing ideas for product packaging.
- Sales focuses on identifying and developing revenue opportunities, and communicating with customers to ensure that customers gain maximum value from the products.
- Both functions collaborate with researchers and colleagues across other job families to develop sales strategies, identify marketable features, and provide customer support.
- May also be involved in:
  - Technology transfer (bringing in ideas for in-house development)
  - Business development (determining new market areas and products to pursue)
  - Competitive intelligence (what the competition is up to)
- Job titles can include Technical Sales, Technical Marketing, Technical Support, Product Manager, Product Support Specialist.

## Support Functions



- This job family includes a very broad range of workers who support the “product stream” job families.
- Skills in this job family can transfer from a wide variety of other employment backgrounds.
- Job titles can include Technical Communications Specialist, Technical Writer, Patent Attorney, Technical Business Development Manager, HR Specialist

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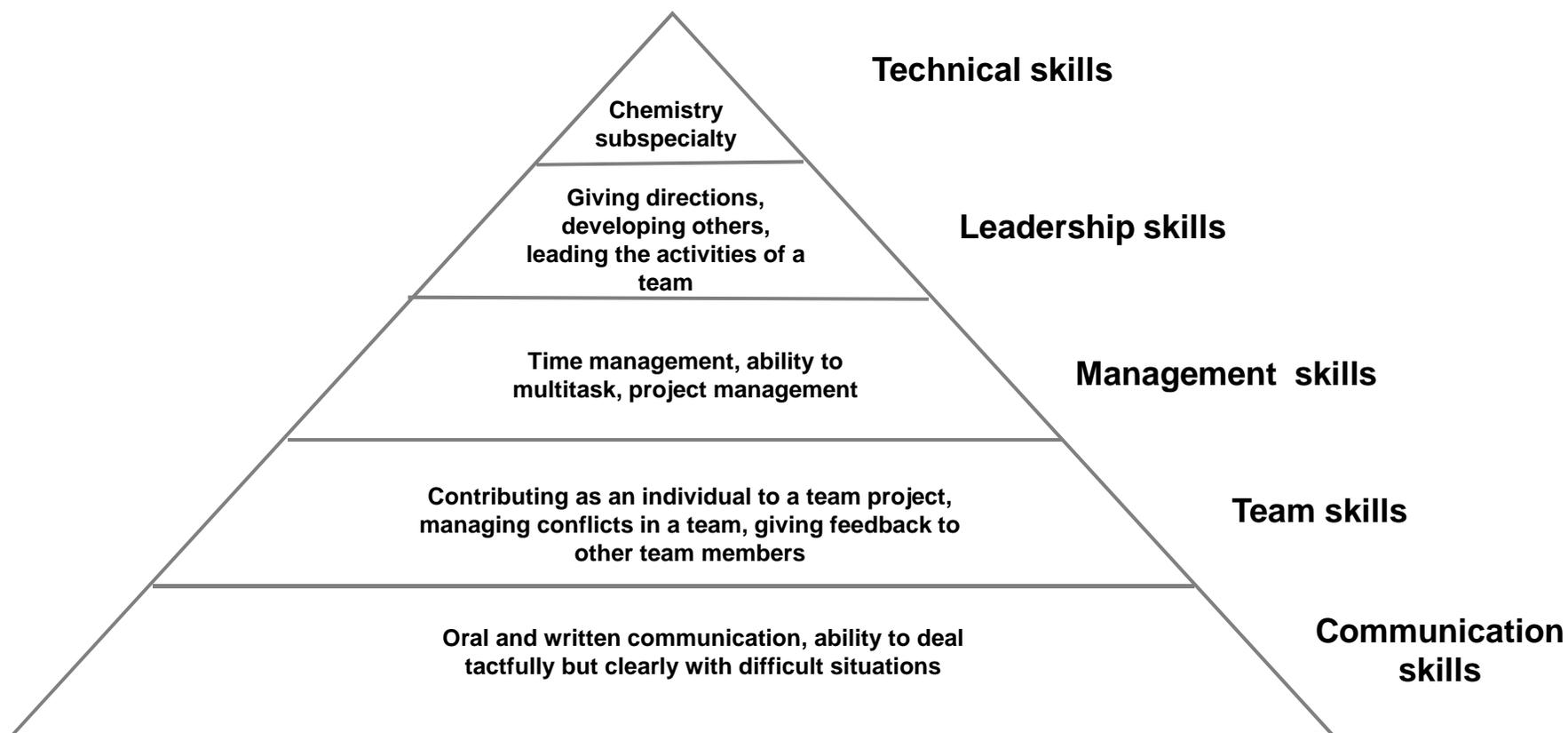
# Where Could I Contribute?

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## Working in Industry: Agenda

- Part 1: The Landscape of the Industry Pathway
  - Trends in Industrial Hiring
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## What Are They Looking for?



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# A Typical Job Description

Example

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# Analyzing a Job Description

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# How Could I Strengthen My Position?

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Break

## Working in Industry: Agenda

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# Who Makes the Cut?

Small group activity

# The Purpose of a Resume



## *A Resume Is a*

- Marketing tool
- Way to demonstrate your match with job requirements
- Communication that differentiates you from others

## *A Resume Is Not a*

- Complete listing of all your skills
- Curriculum Vita
- Substitute for a job application form

The purpose of a resume is to get you the interview, not to get you the job.

# The Curriculum Vita vs Resume

## Curriculum Vita

- Does not require an “Objective” section
- Length is not a constraint
- Should include everything you have accomplished
- Not extensively customized for each application

## Resume

- Statement of “Objective” is often included
- Should be no longer than two pages, especially at first
- Presents a list of accomplishments focused on the position in question
- Extensively customized for each job application

# A Resume from the Employer's Point of View



- The purpose is to screen out applicants who don't fit.
- Average review time for each resume is about 20 to 30 seconds.
- The first 7 seconds are crucial.

# Preparing a Resume: Principles



- Specific is better than general
- Concise is better than verbose
- Accurate is better than “creative”
- Careful is better than careless

Important tip: Some employers will use a single error or misspelling to disqualify a resume.

# Preparing a Resume: Main Topics



- Resume structure
- Resume format and style
- Components of your resume “portfolio” (especially cover letter)
- Starting/refining your resume

# The Structure of a Resume



- **Introduction**
  - Heading
  - Job objective
  - Highlights
- **Background**
- **Supporting information**

# The Heading: What to Include



- Name
- Address
- Email contact information
- Web page
- Phone number

# Job Objective: Yes or No?



## *Arguments for*

- Demonstrates better alignment with some jobs
- Clarifies your interests
- Can alert reader to your key qualifications

## *Arguments against*

- Can be an exercise in creative writing
- Narrows your options
- May send the wrong message to reader

# Job Objective: Examples



- **Wrong-way examples:**
  - “To join a group to reach new horizons in productivity and growth”
  - “A management vs. research position”
  - “Organic chemistry position in drug discovery vs. other positions for organic chemists”
- **Right-way example:**
  - “A position as an organic chemist taking advantage of my knowledge of medicinal chemistry and organic synthesis”
  - “A supervisory position in an analytical laboratory in the petrochemical industry”

**Important tip: A good objective will run from two to three lines.**

# Highlights



- Guides the reader's attention as he or she reviews the resume.
- Makes explicit some skills or experiences that would otherwise be implicit in a job description.
- Offers you the chance to present the “entire package.”

## Highlights: Some Examples



- “Experienced in the synthesis, purification and characterization of organic compounds”
- “Skilled in identifying and preparing novel materials for use in fuel cells”
- “Adept at preparing fuel cells having high efficiency and extended shelf-life”
- “Originated techniques for detecting energy loss sites in photo-electric membranes”
- “Proven team leader with excellent interpersonal and communication skills”

# Writing Your Highlights Section



## *Types of Skills*

- Technical
- Business
- Teamwork
- Communications
- Management

## *How to Frame*

- “Broad knowledge of . . .”
- “Experienced in . . .”
- “Proficient in . . .”
- “Adept at . . .”
- “Proven track record in . . .”

# The Structure of a Resume



- **Introduction**
  - Heading
  - Highlights
  - Job objective
- **Background**
  - Education
  - Work experience
  - Other relevant skills
- **Supporting information**

## Section 2: Background



### *Education*

- List degrees in reverse chronological order
- Format: Degree, field, university, location, year
- For graduate degrees, list thesis title and name of advisor
- List grades only if very high

### *Research/Work Experience*

- List positions in reverse chronological order
- Separate post-doc and thesis research
- Format: Dates, position title, organization, key accomplishments
- State accomplishments concisely
  - Begin with a verb
  - Describe impact or results

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# Background Section Examples

## Section 2: Other Relevant Skills



- Special techniques
- Instrumentation
- Unusual computer programs
- Languages

# The Structure of a Resume



- **Introduction**
  - Heading
  - Highlights
  - Job objectives
- **Background**
  - Education
  - Work experience
  - Other relevant skills
- **Supporting information**
  - Awards, publications
  - Presentations, professional affiliations
  - References

## Section 3: Supporting Information



### *Publications and Presentations*

- List publications using accepted citation protocol
- State number of:
  - Publications in peer-reviewed journals
  - U.S. patents granted
  - Presentations

### *Professional Awards and Honors*

- For awards, include name of award, date, granting organization, effort acknowledged
- Also mention:
  - Positions in professional organizations (like ACS)
  - “Non-scientific” activities showing leadership as relevant to you job search

# The Question of References



- Many experts recommend against including references on your resume.
  - Some employers contact references before talking with you.
  - Don't state, "References available on request."
- If you identify references:
  - Visit potential references and select only strong advocates.
  - Leave a copy of your resume.
  - Provide updates on your job search.
- List of references can often be a component of the resume "portfolio."

## What Not to Include



- Age
- Marital status
- Number of children
- Religion or political party affiliation
- National origin
- Past salary history
- Hobbies (except one reflecting an exceptional skill)

# Right-Way Example of Structure

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# Critiquing an Ineffective Structure

# Formatting the Resume



- Try to keep it to 1 page in length (never longer than 2)
- Use standard font (Arial, Tahoma, Times New Roman)—usually only one font
- 11 to 12 point font size
- Printed on white or off-white paper with black ink
- Use design elements (bullets, bolding) to guide the reader's eye
- Maintain a good balance between white space and text
- Be consistent
- Consider converting to .pdf

# Formatting for Electronic Submission



- Use keywords that are relevant to the position you are applying for:
  - Technical keywords
  - Communication keywords
- Avoid special formatting, such as:
  - Columns
  - Decorative break lines
  - Underlining and shadowing
  - Italics

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# Critiquing an Ineffective Format

# Your Resume “Portfolio”



- What: A central repository of documents pertaining to your entire job search
- Why: To facilitate creation of new applications and reference to current applications
- Contents:
  - Several versions of the resume geared to different job objectives
  - Cover letter(s)
  - List of references
  - Research summary
  - Other relevant marketing documents (patent review, management philosophy, etc.)
  - Notes towards your “elevator pitch”
  - One folder with each of your current applications

# The Purpose of a Cover Letter



- Entice the hiring manager or reader to look at the resume
- Highlight connections between your experience and the position
- Communicate your personality, stature and credibility
- Demonstrate knowledge of the hiring company
- Differentiate you from other applicants
- Ask for an opportunity to discuss your qualifications in more detail

# Cover Letter: The Format



- **The Introduction (1 paragraph)**
  - The job you are applying for
  - How you learned about it
  - Any contacts you have in the company
  - Your general qualifications
- **The Body (2 to 4 paragraphs)**
  - Expand on your qualifications
  - Pick the most relevant qualifications and describe in detail
- **Conclusion (1 paragraph)**
  - Request an interview (or some other response, as appropriate)
  - State where and when you can be reached
  - Express your willingness to come to an interview or supply further information

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# Cover Letter Example

# The Research Summary



- Capture your research in a readable form
- Be detailed, but not too technical
- Leave the technical details for your research seminar in the interview

# Getting Started



## *Starting Your Resume*

- How would I describe my career objective?
- What are the “highlights” I would bring to a job?
- What is my background and experience?

## *Refining Your Resume*

- What elements of my background and experience could I more effectively highlight?
- How can I improve the structure and format?

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# Starting or Refining My Resume

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## Working in Industry: Agenda

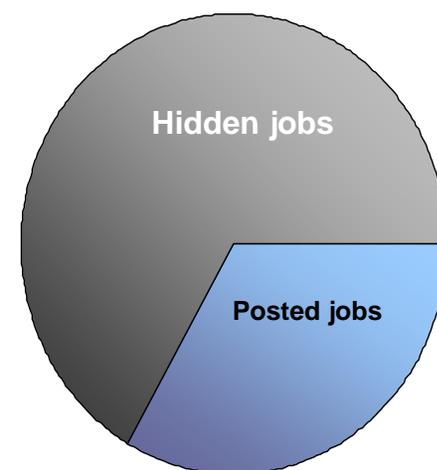
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## Locating a Job: Posted Jobs

- Company websites
- Professional societies
  - ACS Career Jobs Database
  - Eastern Analytical Symposium
- Professional publications
  - *C&EN*
  - *Science*
- Electronic bulletin boards
  - hotjobs.com
  - CareerBuilder.com
  - money.cnn.com/service/careerbuilder
  - indeed.com
- Trade shows and technical meetings
- Campus interviews and career fairs

## Locating a Job: Hidden Jobs

- Evidence suggests that at any given time about two-thirds of available jobs are “hidden” (that is, not advertised or posted)
- Jobs are “hidden” because:
  - Other positions have priority
  - Advertising funds are limited
  - Management is too busy
  - Job is proposed, but not yet budgeted
- Finding the “hidden” jobs:
  - LinkedIn
  - Networking (with people who are just a few years ahead of you as well as more senior contacts)



## Networking: Where to Start

- ACS national meetings: attend session topics of interest and engage presenters and other attendees
- Local section meetings: contact people in your location
- On campus: establish contacts through professors, career office, alumni association

## Networking: Some Tips

- Set an objective of meeting at least two new people per event you attend.
- Engage people in a conversation about themselves, not about you.
- Print and exchange business cards (order yours on-line or at a big-box office supply store).
- Ask for a follow-up contact (a “networking conversation”).

## The Purpose of the “Networking Conversation”

- To build your network
- To signal your availability and interest
- To learn about a company and a job position

Important tip: The purpose of the Networking Conversation is ***not*** to ask for a job.

# Preparing for a Networking Conversation

- Researching the industry
  - Industry trends
  - Main competitors
  - Sources: Standard & Poor's, Hoover's, C&EN
- Researching the company
  - Company strategy
  - Company structure and recent performance
  - Sources: Annual report ("Letter to Shareholders"), 10-K
- Researching the person
  - "Google" the person, check on LinkedIn
  - Ask assistant for information (how long the person has been at the company, exact job title, etc.)
  - Ask in your ACS network

## Types of Questions to Ask

- Questions about the company
  - How does this company differ from its competitors?
  - How would you describe the culture of this company?
- Questions about the job
  - What does your typical day look like?
  - What are your main responsibilities?
- Questions about the person
  - What do you like best about your job? What do you find most challenging?
  - How did you get your job? What would be the next step in your career?
- Questions about your own fit for the job
  - What are some typical entry-level job titles and functions?
  - What kind of advice do you have for someone pursuing a job in this area?
  - What would you say are my strongest assets for a job in this area?

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# Examples of Networking Conversation Questions

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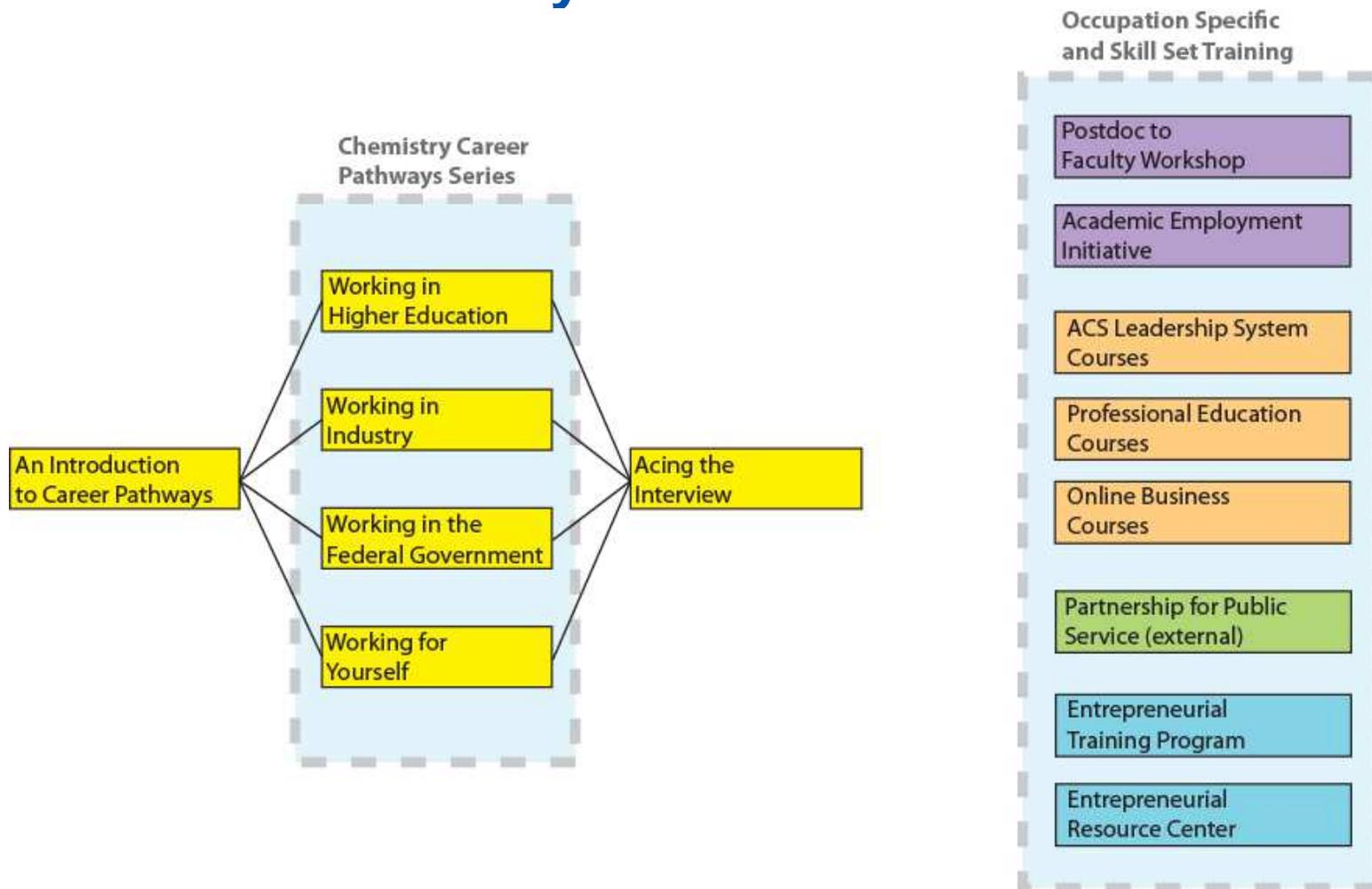
# Practicing a Networking Conversation

Pairs activity

## Working in Industry: Review

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# ACS Careers Pathways Series





## What Career Services Are Available from ACS

- Employment services
- Personalized career assistance
- Workshops and presentations
- Workforce analysis
- Local section career program
- Career-related publications
- Website: [acs.org/careers](https://acs.org/careers)

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# Path Forward and Next Steps

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